

AMENDMENTS TO THE CLAIMS

The following listing of claims will replace all prior versions and listings of claims in the application.

LISTING OF CLAIMS

1. (currently amended) A hybrid motor vehicle, comprising:

an engine having a rotary output;

a transmission having a rotary input and a rotary output connected to a first axle assembly having a first pair of wheels;

a first clutch for selectively coupling said engine output to said transmission input for providing driving torque to said first pair of wheels;

an electric motor having a rotary member connected to a second axle assembly having a second pair of wheels;

a transfer unit driven by said engine output;

a second clutch for selectively coupling said transfer unit to said rotary member of said electric motor; ~~and~~

a third clutch for selectively coupling said rotary member of said electric motor to said second axle assembly; and

a hybrid control unit for controlling selective actuation of said electric motor and said first ~~and~~, second and third clutches, such that an electric drive mode is established when said first and second clutches are released, said third clutch is engaged and said electric motor provides drive torque to said second axle assembly for driving said second pair of wheels.

2. (currently amended) The hybrid motor vehicle of Claim 1 further comprising:

an engine control unit for controlling operation of said engine; and

a transmission control unit for controlling shifting of said transmission so as to establish various speed ratio drive connections between said transmission input and said transmission output, said hybrid control unit communicating with said engine control unit and said transmission control unit to establish an said electric drive mode and an engine drive mode.

3. (original) The hybrid motor vehicle of Claim 2 wherein said first clutch is engaged and said second clutch is released during said engine drive mode such that said engine delivers drive torque through said transmission to said first pair of wheels.

4. (currently amended) The hybrid motor vehicle of Claim 3 wherein said third clutch can be engaged such that said rotary member of said electric motor is ~~selectively~~ driven by said second axle assembly during said engine drive mode for driving said electric motor as a generator.

5-6. (cancelled)

7. (currently amended) The hybrid motor vehicle of Claim [[6]] 1 wherein said first clutch is engaged and said second and third clutches are released during an engine drive mode for providing drive torque to said first pair of wheels.

8. (original) The hybrid motor vehicle of Claim 7 wherein said second clutch can be selectively engaged during said engine drive mode for driving said rotary member of said electric motor such that said electric motor functions as a generator for charging a battery.

9. (cancelled)

10. (currently amended) The hybrid motor vehicle of Claim [[6]] 1 wherein said first and third clutches are engaged and said second clutch is released during a hybrid engine and electric motor drive mode such that said engine provides drive torque to said first pair of wheels and said electric motor provides drive torque to said second pair of wheels.

13. (currently amended) A four-wheel drive hybrid vehicle, comprising:

- a first pair of wheels;
- a second pair of wheels;
- an engine;
- a power transfer unit driven by said engine;
- a first clutch for selectively connecting said engine to said first pair of wheels;
- an electric motor;
- a second clutch for selectively connecting said power transfer unit to said electric motor; and
- a third clutch for selectively connecting said electric motor to said second pair of wheels

[[.]], and wherein an electric drive mode is established when said first and second clutches are released and said third clutch is engaged such that said electric motor drives said second pair of wheels.

14. (original) The four-wheel drive hybrid vehicle of Claim 13 wherein said first clutch is engaged and said third clutch is released during an engine drive mode.

15. (original) The four-wheel drive hybrid vehicle of Claim 14 wherein said second clutch may be engaged during said engine drive mode for driving said electric motor as a generator to charge a battery.

16. (cancelled)

17. (original) The four-wheel drive hybrid vehicle of Claim 13 wherein said first and third clutches are engaged and said second clutch is released during a hybrid combined engine and motor drive mode such that said engine provides drive torque to said first pair of wheels and said electric motor provides drive torque to said second pair of wheels.

18. (original) The four-wheel drive hybrid vehicle of Claim 13 further comprising a control unit for controlling operation of said engine, said electric motor and said first, second and third clutches.

19. (original) The four-wheel drive hybrid vehicle of Claim 13 further comprising a transmission that is drivingly connected to said first pair of wheels, and wherein said first clutch is operable for selectively connecting said engine to said transmission.

20. (withdrawn)

21. (original) The four-wheel drive hybrid vehicle of Claim 13 further comprising an axle assembly interconnecting said second pair of wheels, and wherein said third clutch is operable for selectively connecting said electric motor to said axle assembly.

22. (currently amended) A hybrid drive system, comprising

- an engine;
- a power transfer unit directly driven by said engine;
- ~~a first axle assembly driven by said engine for providing drive torque to~~ having a
first pair of wheels;
- an electric motor;
- a first clutch for selectively transmitting drive torque from said engine to said first
axle assembly;
- a ~~first~~ second clutch for selectively connecting said power transfer unit to said
electric motor;
- a second axle assembly having a second pair of wheels;
- a ~~second~~ third clutch for ~~adaptively~~ transferring drive torque from said electric
motor to said second axle assembly; and
- a control unit for controlling operation of said engine and said electric motor and
selective actuation of said first, ~~and second~~ and third clutches, and wherein an electric
drive mode is established when said first and second clutches are released and said
third clutch is engaged such that said electric motor drives said second pair of wheels.

23. (cancelled)

24. (currently amended) The hybrid drive system of Claim 22 wherein said electric motor has a rotary motor shaft, wherein said ~~first~~ second clutch is operable for selectively coupling said power transfer unit to said motor shaft, and wherein said ~~second~~ third clutch is operable for transferring drive torque from said motor shaft to said second axle assembly.

25-29. (cancelled)

30. (new) A hybrid motor vehicle, comprising:

- an engine having a rotary output;
- a transmission having a rotary input and a rotary output connected to a first axle assembly having a first pair of wheels;
- a first clutch for selectively coupling said engine output to said transmission input for providing driving torque to said first pair of wheels;
- an electric motor having a rotary member connected to a second axle assembly having a second pair of wheels;
- a transfer unit driven by said engine output;
- a second clutch for selectively coupling said transfer unit to said rotary member of said electric motor;
- a third clutch for selectively coupling said rotary member of said electric motor to said second axle assembly; and
- a hybrid control unit for controlling selective actuation of said electric motor and said first, second and third clutches, whereby a hybrid drive mode is established when said first and third clutches are engaged and said second clutch is released such that said engine transmits drive torque to said first pair of wheels while said electric motor transmits drive torque to said second pair of wheels.

31. (new) A four-wheel drive hybrid vehicle, comprising:

- a first pair of wheels;
- a second pair of wheels;
- an engine;
- a power transfer unit driven by said engine;
- a first clutch for selectively connecting said engine to said first pair of wheels;
- an electric motor;
- a second clutch for selectively connecting said power transfer unit to said electric motor; and
- a third clutch for selectively connecting said electric motor to said second pair of wheels, and wherein a hybrid drive mode is established when said first and third clutches are engaged and said second clutch is released such that said engine drives said first pair of wheels and said motor drives said second pair of wheels.

32. (new) The four-wheel drive hybrid vehicle of Claim 31 wherein said first clutch is engaged and said third clutch is released during an engine drive mode.

33. (new) The four-wheel drive hybrid vehicle of Claim 32 wherein said second clutch may be engaged during said engine drive mode for driving said electric motor as a generator to charge a battery.

34. (new) The four-wheel drive hybrid vehicle of Claim 31 wherein said first and second clutches are released and said third clutch is engaged during an electric drive mode such that said electric motor drives said second pair of wheels.

35. (new) The four-wheel drive hybrid vehicle of Claim 31 further comprising an axle assembly interconnecting said second pair of wheels, and wherein said third clutch is operable for selectively connecting said electric motor to said axle assembly.

36. (new) A hybrid motor vehicle, comprising:

- a front axle assembly having a pair of front wheels;
- a rear axle assembly having a pair of rear wheels;
- an engine;
- a transmission driving said rear axle assembly;
- a power transfer unit operably disposed between said engine and said transmission and having an input member driven by said engine for rotatively driving an output member;
- an electric motor having a rotary motor shaft;
- a first clutch operable for selectively coupling said transmission to said engine for transmitting engine drive torque to said rear axle assembly;
- a second clutch operable for selectively coupling said motor shaft to said output member of said power transfer unit;
- a third clutch operable for selectively coupling said motor shaft to said front axle assembly for transmitting motor drive torque to said front axle assembly; and
- a hybrid control system for controlling actuation of said clutches and said electric motor so as to establish one of an electric drive mode and an engine drive mode.

37. (new) The hybrid motor vehicle of Claim 36 wherein said electric drive mode is established when said first and second clutches are released and said third clutch is engaged such that said motor drive torque generated by said motor is transmitted to said front wheels.

38. (new) The hybrid motor vehicle of Claim 36 wherein said engine drive mode is established when said first clutch is engaged and said second and third clutches are released such that engine drive torque is transmitted through said transmission to said rear wheels.

39. (new) The hybrid motor vehicle of Claim 36 wherein a hybrid drive mode is established when said first and third clutches are engaged and said second clutch is released such that said engine transmits engine drive torque to said rear wheels while said motor transmits motor drive torque to said front wheels.